

Remarks

Claims 1, 3-18, 20-23 and 26-29 are pending herein. By this Amendment, claims 2, 19, 24 and 25 have been canceled; claims 1, 3, 7, 9 and 13 have been amended; and new claims 26-29 have been added.

Claim 1 has been amended in part to include the contents of canceled claims 2, 24 and 25.

In addition, claim 1 has been amended to recite that the casing of the coating unit is set in the housing at a level below the casing of the heating unit. Support for this recitation can be found, e.g., in Fig. 13, wherein the casing of the coating unit is designated by reference numeral 55a and the casing of the heating unit is designated by reference numeral 55d.

Claim 1 has also been amended to recite that the air passageway is connected to an exhaust device through an exhaust port formed on the housing of the process tower, such that the air blown from the air blowing mechanism passes through the coating unit and flows upward into the air passageway, and is then exhausted to the exhaust device through the air passageway. Support for this recitation can be found, e.g., in the specification at page 38, lines 13-20.

Claim 3 has been amended in part so that it is now an independent claim incorporating the features of claims 1 and 3. In addition, claim 3 has been amended to recite that the unit control device has its own ID number. Support for this recitation can be found in the specification at, e.g., page 39, lines 17-18 and page 40, lines 23-25. In addition, claim 3 has been amended to state that the tower control apparatus automatically recognizes the process unit with reference to the ID number thereof. Support for this recitation can be found in the specification at, e.g., page 40, line 25 – page 41, line 2.

Claim 7 has been amended to recite that the process units include a temperature control unit disposed between the coating unit and the heating unit and configured to control the substrate before coating with the chemical liquid at a prescribed temperature. Support for this recitation can be found in the specification at, e.g., page 20, line 26 – page 21, line 9, and in Fig. 2.

Claim 9 has been amended simply to correct a grammatical error.

Claim 13 has been amended so that it is now an independent claim containing the features of claims 1 and 13. In addition, claim 13 has been amended to recite that the curing unit comprises a load-lock chamber having a substrate load port and configured to adjust an inner pressure thereof between atmospheric pressure and a vacuum, and a curing process chamber connected to the load-lock chamber and configured to perform the curing processing with a vacuum atmosphere. Support for these recitations can be found in the specification at, e.g., page 65, lines 2-15; page 67, lines 20-24; and in Figs. 25 and 26.

Support for new claim 26 can be found, e.g., in Fig. 13, wherein the exhaust port is represented by reference numeral 57a and the casing of the heating unit is designated by reference numeral 55d.

Support for new claim 27 can be found in the specification at, e.g., page 20, lines 11-15 and in Figs. 2-4 and 13, wherein the film thickness measuring unit is designated by reference numeral 19, the coating unit is designated by reference numeral 18, the casing of the coating unit 18 is designated by reference numeral 55a, the heating unit is designated by reference numeral 21, and the casing of the heating unit 21 is designated by reference numeral 55d.

Support for new claim 28 can be found in the specification at, e.g., page 40, line 25 – page 41, line 2; and page 42, line 13 – page 44, line 13.

Support for new claim 29 can be found in the specification at, e.g., page 59, lines 3-18, and in Fig. 22, wherein the temperature control plate is designated by reference numeral 76.

The Office Action sets forth the following rejections:

- claims 1, 2, 6-11, 13, 15-18 and 20 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,350,316 to Hayashi in view of U.S. Patent No. 5,762,745 to Hirose;
- claim 3 is rejected under §103(a) as being unpatentable over Hayashi in view of Hirose and further in view of U.S. Patent Application Publication No. 2002/0145922 to Yoshimoto et al. (“Yoshimoto”);

- claim 4 is rejected under §103(a) as being unpatentable over Hayashi in view of Hirose and Yoshimoto, and further in view of U.S. Patent No. 6,309,116 to Mahara et al.;
- claim 5 is rejected under §103(a) as being unpatentable over Hayashi in view of Hirose and Yoshimoto, and further in view of U.S. Patent No. 4,999,215 to Akagi et al.;
- claim 12 is rejected under §103(a) as being unpatentable over Hayashi in view of Hirose and in further view of U.S. Patent No. 5,844,662 to Akimoto et al.;
- claims 14 and 19 are rejected §103(a) as being unpatentable over Hayashi in view of Hirose and in further view of U.S. Patent Application Publication No. 2001/0015412 to Komori et al.;
- claims 21-23 are rejected under §103(a) as being unpatentable over Hayashi in view of Hirose and in further view of U.S. Patent No. 6,071,047 to Nakai;
- claim 24 is rejected under §103(a) as being unpatentable over Hayashi in view of Hirose and in further view of U.S. Patent No. 4,687,907 to Barkley et al.; and
- claim 25 is rejected under §103(a) as being unpatentable over Hayashi in view of Hirose and in further view of U.S. Patent No. 5,964,954 to Matsukawa et al.

In view of the amendments and remarks herein, Applicant respectfully requests reconsideration and withdrawal of the rejections set forth in the Office Action.

I. Rejection of Claims 1, 2, 6-11, 13, 15-18 and 20

Claims 1, 2, 6-11, 13, 15-18 and 20 are rejected under §103(a) as being unpatentable over Hayashi in view of Hirose.

Claim 2 has been canceled. Claims 1 and 13 are independent; claims 6-11, 17, 18 and 20 depend directly or indirectly upon claim 1; and claims 15 and 16 depend upon claim 13. New claims 26-28 depend directly or indirectly upon claim 1, and new claim 29 depends upon claim 13.

Applicant respectfully submits that claims 1, 6-11, 13, 15-18, 20 and 26-29 would not have been obvious over Hayashi in view of Hirose.

(A) Claims 1, 6-11, 17, 18, 20 and 26-28

Claim 1 has been amended to include the following features:

- (i) each of the plural process units is housed in a casing (from cancelled claim 24);
- (ii) the process tower includes a housing which has a plurality of levels for detachably accommodating the casings of the process units (from cancelled claims 2 and 24);
- (iii) the casing of the coating unit is set in the housing at a level below the casing of the heating unit;
- (iv) the casing of the heating unit and the casing of the coating unit are arranged with an air passageway interposed therebetween within the housing so as to achieve heat insulation therebetween (from cancelled claim 24);
- (v) an air blowing mechanism is connected to the coating unit and configured to blow air having a controlled temperature and humidity into the coating unit so as to control the temperature and humidity of the coating unit (from cancelled claim 25);
- (vi) the casing of the coating unit is constructed to cause the air blown from the air blowing mechanism into the coating unit to be exhausted from the coating unit into the air passageway (from cancelled claim 25); and
- (vii) the air passageway is connected to an exhaust device through an exhaust port formed on the housing of the process tower, such that the air blown from the air blowing mechanism passes through the coating unit and flows upward into the air passageway, and is then exhausted to the exhaust device through the air passageway.

The apparatus set forth in claim 1 is designed to remove thermal influence from the heating unit onto the coating unit. Reference is made to the specification at, e.g., page 25, lines 6-17, and page 38, lines 13-17, and also Figure 13.

Applicant submits that Hayashi in view of Hirose does not teach the features listed above.

Features (i) and (iv) were originally recited in cancelled claim 24, feature (ii) is taken from cancelled claims 2 and 24, and features (v) and (vi) were originally set forth in cancelled claim 25. Thus, amended claim 1 includes, *inter alia*, the features of both claims 24 and 25. The Office Action acknowledges on page 7 thereof that neither claim 24 nor claim 25 would have been obvious over Hayashi in view of Hirose alone. Specifically, claim 24 is said to be obvious over Hayashi in view of Hirose and further in view of Barkley, and claim 25 is said to be obvious over Hayashi in view of Hirose and further in view of Matsukawa. However, amended claim 1 includes the features of both claims 24 and 25. Thus, Applicant submits that neither Barkley nor Matsukawa cures the deficiency of Hayashi in view of Hirose to teach amended claim 1. Applicant further notes that Matsukawa only discloses circulation of ambient gas in a coating unit.

Thus, for at least the foregoing reasons, Applicant respectfully submits that claims 1, 6-11, 17, 18, 20 and 26-28 would not have been obvious over Hayashi in view of Hirose.

The International Search Report for the PCT application on which the instant application is based cited JP 9-129526 and JP 2002-64004 as category “Y” references relative to original claim 25. Applicant notes that these references disclose supply of clean air as a down flow from a fan filter disposed above a system, and efficient use of the clean air. However, unlike the instantly claimed invention, these references do not teach anything about a gas flow from a lower side to an upper side to remove a thermal influence from a heating unit onto a coating unit.

(B) Claims 13, 15, 16 and 29

Applicant further submits that claims 13, 15, 16 and 29 would not have been obvious over Hayashi in view of Hirose.

Claim 13 has been amended so that it is now an independent claim containing the features of claims 1 and 13. In addition, claim 13 has been amended to recite that the curing unit comprises a load-lock chamber having a substrate load port and configured to adjust an inner pressure thereof between atmospheric pressure and a vacuum, and a curing process chamber

connected to the load-lock chamber and configured to perform the curing processing with a vacuum atmosphere.

The Office Action indicates that reference numeral 20 in Hayashi refers to a curing unit. The feature identified by reference numeral 20 in Hayashi is a unit assembly composed of a combination of a heating chamber 81 and a cooling chamber 82 configured to respectively perform heating and cooling within atmospheric pressure. Hayashi does not teach or suggest the curing unit described in amended claim 13. Hirose does not cure this deficiency.

Thus, for at least this reason, Applicant respectfully submits that claims 13, 15, 16 and 29 would not have been obvious over Hayashi in view of Hirose.

II. Rejection of Claim 3

Claim 3 is rejected under §103(a) as being unpatentable over Hayashi in view of Hirose and further in view of Yoshimoto.

Claim 3 has been amended in part so that it is now an independent claim incorporating the features of claims 1 and 3. In addition, claim 3 has been amended to recite that the unit control device has its own ID number, and to state that the tower control apparatus automatically recognizes the process unit with reference to the ID number thereof. New claim 28 depends upon claim 3.

According to the Office Action, Hayashi does not teach a tower control apparatus connected to the unit control devices. Yoshimoto is cited for disclosing a processing apparatus comprising a plurality of process sections, wherein a single controller 104 directs the processing within each section, thereby indicating the suitability of such an arrangement.

Applicant submits that Yoshimoto only discloses a combination of a single controller with a plurality of process sections. Yoshimoto does not teach or suggest a unit control device having its own ID number or a tower control apparatus automatically recognizing a process unit with reference to the ID number thereof. In other words, Yoshimoto does not teach or suggest the features added to claim 3. Yoshimoto also does not teach or suggest the features of new claim 28, wherein a tower control apparatus is configured to fabricate a process recipe for a new group of process unit and unit control device.

Thus, for at least this reasons, Applicant respectfully submits that claims 3 and 28 would not have been obvious over Hayashi in view of Hirose and in further view of Yoshimoto.

III. Rejection of Claim 4

Claim 4 is rejected under §103(a) as being unpatentable over Hayashi in view of Hirose and Yoshimoto and further in view of Mahara.

Claim 4 depends upon amended claim 3. For the reasons given above, Applicant submits that amended claim 3 would not have been obvious over Hayashi in view of Hirose and in further view of Yoshimoto. Applicant submits that claim 4 would not have been obvious over these references for at least the same reason that amended claim 3 would not have been. Applicant submits that Mahara does not cure the deficiencies of Hayashi in view of Hirose and Yoshimoto relative to amended claim 3. Thus, for at least this reason, Applicant respectfully submits that claim 4 would not have been obvious over Hayashi in view of Hirose and Yoshimoto and further in view of Mahara.

IV. Rejection of Claim 5

Claim 5 is rejected under §103(a) as being unpatentable over Hayashi in view of Hirose and Yoshimoto and further in view of Akagi.

Claim 5 depends upon amended claim 3. For the reasons given above, Applicant submits that amended claim 3 would not have been obvious over Hayashi in view of Hirose and in further view of Yoshimoto. Applicant submits that claim 5 would not have been obvious over these references for at least the same reason that amended claim 3 would not have been. Applicant submits that Akagi does not cure the deficiencies of Hayashi in view of Hirose and Yoshimoto relative to amended claim 3. Thus, for at least this reason, Applicant respectfully submits that claim 5 would not have been obvious over Hayashi in view of Hirose and Yoshimoto and further in view of Akagi.

V. Rejection of Claim 12

Claim 12 is rejected under §103(a) as being unpatentable over Hayashi in view of Hirose and further in view of Akimoto.

Claim 12 depends upon amended claim 1. For the reasons given above, Applicant submits that amended claim 1 would not have been obvious over Hayashi in view of Hirose. Applicant submits that claim 12 would not have been obvious over Hayashi in view of Hirose for at least the same reasons that amended claim 1 would not have been. Applicant submits that Akimoto does not cure the deficiencies of Hayashi in view of Hirose relative to amended claim 1. Thus, for at least this reason, Applicant respectfully submits that claim 12 would not have been obvious over Hayashi in view of Hirose and further in view of Akimoto.

VI. Rejection of Claims 14 and 19

Claims 14 and 19 are rejected under §103(a) as being unpatentable over Hayashi in view of Hirose and further in view of Komori.

Claim 19 has been cancelled.

Claim 14 depends upon amended claim 13. For the reasons given above, Applicant submits that amended claim 13 would not have been obvious over Hayashi in view of Hirose. Applicant submits that claim 14 would not have been obvious over Hayashi in view of Hirose for at least the same reasons that amended claim 13 would not have been. Applicant submits that Komori does not cure the deficiencies of Hayashi in view of Hirose relative to amended claim 13. Thus, for at least this reason, Applicant respectfully submits that claim 14 would not have been obvious over Hayashi in view of Hirose and further in view of Akimoto.

VII. Rejection of Claims 21-23

Claims 21-23 are rejected under §103(a) as being unpatentable over Hayashi in view of Hirose and in further view of Nakai.

Claims 21-23 depend indirectly upon amended claim 1. For the reasons given above, Applicant submits that amended claim 1 would not have been obvious over Hayashi in view of Hirose. Applicant submits that claims 21-23 would not have been obvious over Hayashi in view of Hirose for at least the same reasons that amended claim 1 would not have been. Applicant submits that Nakai does not cure the deficiencies of Hayashi in view of Hirose relative to amended claim 1. Thus, for at least this reason, Applicant respectfully submits that claims 21-23 would not have been obvious over Hayashi in view of Hirose and further in view of Akimoto.

VIII. Rejection of Claim 24

Claim 24 is rejected under §103(a) as being unpatentable over Hayashi in view of Hirose and in further view of Barkley.

Claim 24 has been cancelled.

IX. Rejection of Claim 25

Claim 25 is rejected under §103(a) as being unpatentable over Hayashi in view of Hirose and in further view of Matsukawa.

Claim 25 has been cancelled.


X. Conclusion

In view of the amendments and remarks herein, Applicant respectfully requests that the rejections set forth in the Office Action be withdrawn and that claims 1, 3-18, 20-23 and 26-29 be allowed.

If any fees under 37 C. F. R. §§ 1.16 or 1.17 are due in connection with this filing, please charge the fees to Deposit Account No. 02-4300, Order No. 033082M252.

Respectfully submitted,
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